



UNITED STATES PATENT AND TRADEMARK OFFICE

SLW
UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION N
10/645,443	08/18/2003	Richard Paul Beldam	H0003280DIV	7987

7590 10/01/2004

Ephraim Starr, Division General Counsel
Honeywell International Inc.
Suite #200
23326 Hawthorne Boulevard
Torrance, CA 90505

EXAMINER

COMPTON, ERIC B

ART UNIT	PAPER NUMBER
----------	--------------

3726

DATE MAILED: 10/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/645,443

Applicant(s)

BELDAM ET AL.

Examiner

Eric B. Compton

Art Unit

3726

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/27/03 & 1/16/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION***Priority***

1. It is noted that this application appears to claim subject matter disclosed in prior Application No. 10/161,249, filed May 31, 2002. A reference to the prior application must be inserted as the first sentence of the specification of this application or in an application data sheet (37 CFR 1.76), if applicant intends to rely on the filing date of the prior application under 35 U.S.C. 119(e) or 120. See 37 CFR 1.78(a). For benefit claims under 35 U.S.C. 120, the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of all nonprovisional applications. Also, the current status of all nonprovisional parent applications referenced should be included.

If the application is a utility or plant application filed under 35 U.S.C. 111(a) on or after November 29, 2000, the specific reference to the prior application must be submitted during the pendency of the application and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior application. If the application is a utility or plant application which entered the national stage from an international application filed on or after November 29, 2000, after compliance with 35 U.S.C. 371, the specific reference must be submitted during the pendency of the application and within the later of four months from the date on which the national stage commenced under 35 U.S.C. 371(b) or (f) or sixteen months from the filing date of the prior application. See 37 CFR 1.78(a)(2)(ii) and (a)(5)(ii). This time period is not extendable and a failure to submit the reference required by 35 U.S.C.

Art Unit: 3726

119(e) and/or 120, where applicable, within this time period is considered a waiver of any benefit of such prior application(s) under 35 U.S.C. 119(e), 120, 121 and 365(c). A priority claim filed after the required time period may be accepted if it is accompanied by a grantable petition to accept an unintentionally delayed claim for priority under 35 U.S.C. 119(e), 120, 121 and 365(c). The petition must be accompanied by (1) the reference required by 35 U.S.C. 120 or 119(e) and 37 CFR 1.78(a)(2) or (a)(5) to the prior application (unless previously submitted), (2) a surcharge under 37 CFR 1.17(t), and (3) a statement that the entire delay between the date the claim was due under 37 CFR 1.78(a)(2) or (a)(5) and the date the claim was filed was unintentional. The Director may require additional information where there is a question whether the delay was unintentional. The petition should be addressed to: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. 5,482,112 to Sasaki et al ("Sasaki").

Sasaki disclose a condenser, i.e., a multi-pass heat exchanger (Fig. 1), comprising at least on coolant plenum (12) for flowing a coolant (e.g. air); at least one first-pass plenum (A) defining a first area-in-flow of heated fluid; and at least one

Art Unit: 3726

subsequent-pass plenum (B, C) defining a second area-in-flow of heated fluid, wherein the first-in-flow area substantially exceeds the second area-in-flow. See Fig. 6.

The reference further discloses:

The header 3 has its inner space divided by a partition 10 into two sections, and the header 4 also has two sections divided by a partition 11. In this way the whole cooling medium path 12 is divided into an inlet side group (A), an intermediate group (B) and an outlet side group (C) as shown FIGS. 1 and 8. The cooling medium flows in zigzag patterns throughout the groups (A), (B) and (C). As shown in FIG. 6, the intermediate group (B) has a smaller number of flat tubes 1 (that is, paths) than the inlet side group (A), which means that the cross-sectional area of the intermediate group (B) of paths is smaller than that of the group (A). The outlet side group (C) has a smaller number of flat tubes 1 (that is, the number of cooling medium paths) than the intermediate group (B), which means that the cross-sectional area of the outlet side group (C) of paths is smaller than that of the group (B).

Col. 3, lines 43-58.

A method of making the heat exchanger is implicitly disclosed. The other claimed features are clearly disclosed by the reference as well.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (AAPA) in view of Sasaki.

AAPA, as found on pages 1-2 and with regards to Figure 1, discloses the conventional multi-pass exhaust gas recirculation cooler, having first-pass plenums and subsequent-pass plenums including a plurality of exhaust gas passages. The method of making the device is implicitly discloses.

However, AAPA does not disclose "the total number of exhaust gas passages in the plurality of first-pass plenums substantially exceeds the total number of exhaust passages in the plurality of subsequent-pass plenums."

Sasaki discloses the invention as cited above. As shown in Fig. 6, the heat exchanger is nearly identical to Applicant's device. The total number of passages in the first-pass plenums (A) substantially exceeds the total number of passages in the subsequent-pass plenums (B, C). Like Applicant, Sasaki is concerned with pressure loss due to the cooling of the fluid between the inlets and the outlets resulting in lowered heat exchange. See Col. 1, line 45 - Col. 2, line 4 (discussing if outlet side area is not in optimal proportion to inlet area the fluid undergoes a large pressure loss and heat exchange is reduced); Specification, page 8, lines 14-16 (Applicant noted the same problem, "The high velocity in the first pass causes parasitic pressure losses, and the lower velocity in the subsequent passes through the cooler core 10 results in reduced heat transfer."). Through experimentation, Sasaki found that the rate of heat exchange is maximum (and pressure loss minimum) where the outlet cross-sectional area is approximately 40% that of the inlet cross-sectional area. See Figures 7-8.

Regarding claims 4-6, it would have been obvious to one having ordinary skill in the art at the time of invention to have made the multi-pass exhaust gas recirculation

Art Unit: 3726

cooler of AAPA, where the total number of exhaust gas passages in the plurality of first-pass plenums substantially exceeds the total number of exhaust passages in the plurality of subsequent-pass plenums, in light of the teachings of Sasaki, in order to maximize heat transfer and minimize pressure loss. *Id.*

A method of making the multi-pass exhaust gas recirculation cooler of AAPA/Sasaki is implicitly disclosed. The other claimed features are clearly disclosed by the references as well.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric B. Compton whose telephone number is (703) 305-0240. The examiner can normally be reached on M-F, 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter B. Vo can be reached on (703) 308-1789. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Eric Compton
Patent Examiner
Art Unit 3726